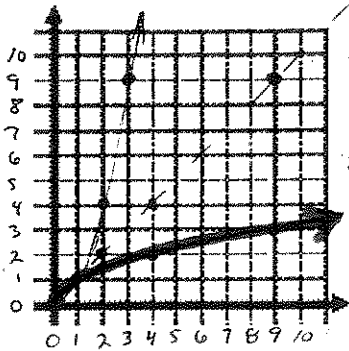


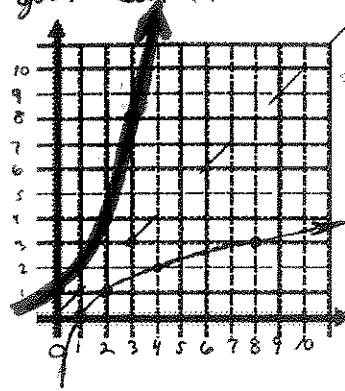
* If your scatter plot looks like the thick line. Then use \rightarrow to re-express (straighten) your data.

Day 29

- 1) Complete table: Given x Find y. 2) Sketch x vs. y, f(x)
- 3) Find the inverse of the function algebraically, f⁻¹(x).
- 4) Sketch the inverse, f⁻¹(x) (calculator OK). 5) 3rd row of table: Given y Find inverse. 6) Plot x vs. inverse.



Solve for x: $y = \sqrt{x}$
 $(\)^2 = (\)^2$
 $y^2 = x$
 $x^2 = y$
 inverse swap x & y
 $f^{-1}(x) = x^2$

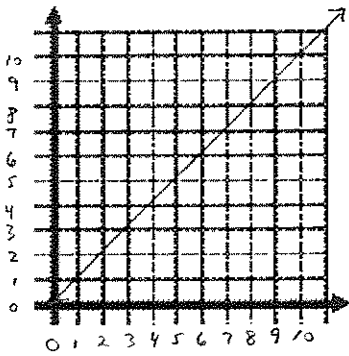


Solve for x: $y = 2^x$
 $\log_2 = \log_2$
 $\log_2 y = \log_2 2^x$
 $\log_2 y = x$
 inverse swap x & y
 $\log_2 x = y$
 $f^{-1}(x) = \log_2 x$

x	-1	0	1	2	3
y	1/2	1	2	4	8
log ₂ y	-1	0	1	2	3

\rightarrow (base 10)

x	0	1	2	4	9
y	0	1	1.4	2	3
y ²	0	1	2	4	9

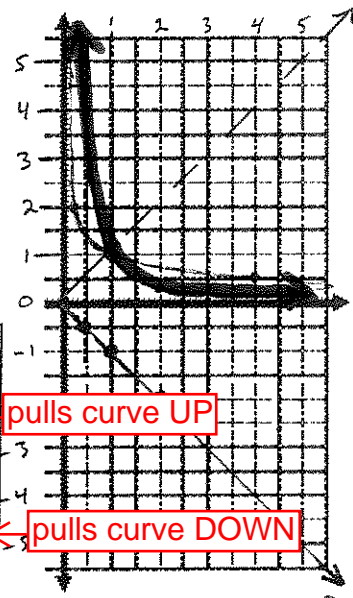


$y = x$

If your re-expression didn't quite work. Then move down or up the ladder.

Ladder of Powers

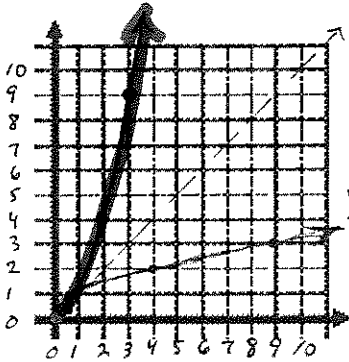
2	x^2	← pulls curve UP
1	x	
1/2	\sqrt{x}	← pulls curve DOWN
0	1	
-1/2	$1/\sqrt{x}$	← pulls curve OUT
-1	$1/x$	



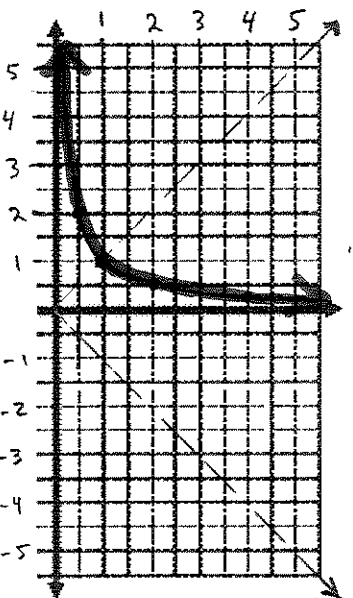
$x^2 \cdot y = \frac{1}{x^2} \cdot x^2$
 $x^2 y = \frac{1}{y}$
 $y = \frac{1}{y}$
 $\sqrt{\ } = \sqrt{\ }$
 $x = \frac{1}{\sqrt{y}}$
 inverse swap x & y
 $y = \frac{1}{\sqrt{x}}$
 $f^{-1}(x) = \frac{1}{\sqrt{x}}$

x	0	1/3	1/2	1	2
y		9	4	1	1/4
1/sqrt(y)		1/3	1/2	1	2
1/y		-3	-2	-1	-2

x	0	1	3	6	10
y	0	1	3	6	10
y	0	1	3	6	10



Solve for x: $y = \sqrt{x}$
 $\sqrt{\ } = \sqrt{\ }$
 $\sqrt{y} = x$
 inverse swap x & y
 $\sqrt{x} = y$
 $f^{-1}(x) = \sqrt{x}$



$x \cdot y = \frac{1}{x} \cdot x$
 $xy = \frac{1}{y}$
 $y = \frac{1}{y}$
 $x = \frac{1}{y}$
 inverse swap x & y
 $y = \frac{1}{x}$
 $f^{-1}(x) = \frac{1}{x}$

x	0	1/2	1	2	3
y	0	1/4	1	4	9
sqrt(y)	0	1/2	1	2	3

x	0	1/2	1	2	4
y		2	1	1/2	1/4
1/y		1/2	1	2	4
-1/y		-1/2	-1	-2	-4